الجامعة العربية الخاصة
للعلوم والتكنولوجيا

Human Computer interaction

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HCI-Lab 1

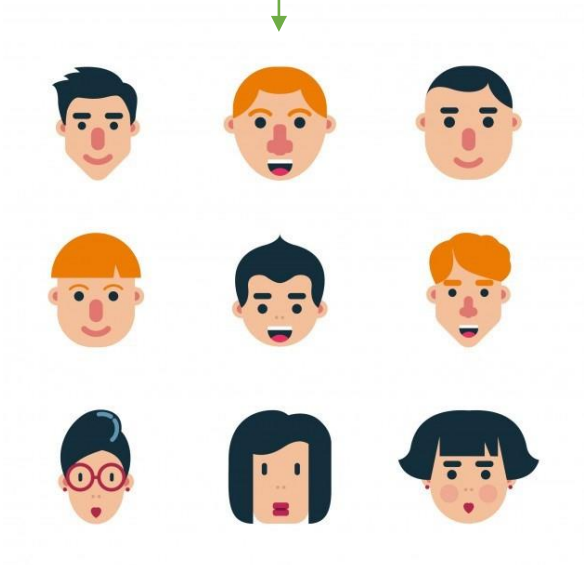
Lab Overview

Outline

- What is HCI
- Lab Project
  - Analysis
  - Requirements Gathering Techniques

What is HCI

HOW



Think

Behave

Remember

HCI

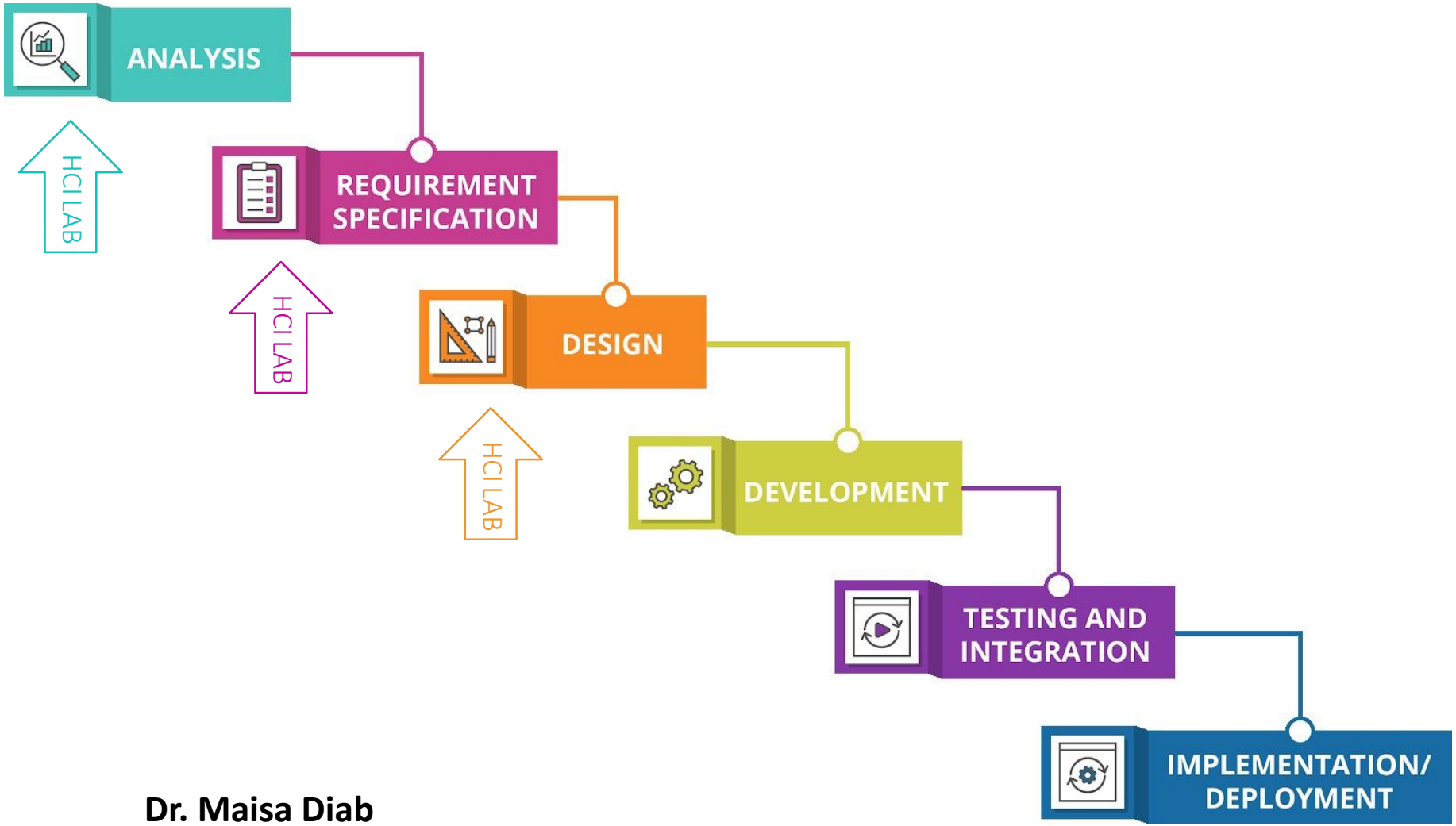
Is the study of interaction between:

- Human
- Computer

Make the interface more User Friendly

HOW

HCI – Lab Project



Project – phase 1 – part 1 :
Project idea and purpose then analysis

Project – phase 1 – part 2 :
Gathering the functional and non functional requirements

Project – phase 2 :
Design system interfaces (paper prototype)

Project phase 3 :
Design system interfaces (using a tools)

Project – phase 4 :
Usability testing

1.Analysis

1.Analysis

Task Analysis Questions

1. Who is going to use the system?
2. What tasks do they now perform?
3. What tasks are desired?
4. How are the tasks learned?
5. Where are the tasks performed?
6. What is the relationship between people & data?
7. What other tools do people have?
8. How do people communicate with each other?
9. How often are the tasks performed?
10. What are the time constraints on the tasks?
11. What happens when things go wrong?

Example - Task Analysis

Plantr Task Analysis

1.Who is going to use the system?

Anyone who owns indoor plants is a potential user of Plantr. All of the plant owners that we interviewed forgot to water their plants at some point regardless of age, experience, and background. Even Lucy, who spent most of her time at home because she worked from home, struggled with timely watering

Plantr Task Analysis

2.What are the currently possible tasks?

When people purchase a plant, they often look up information about the proper lighting and temperature conditions for their plants. Additionally, people must find out how much and how frequently to water and fertilize their plants.

Plantr Task Analysis

3.What are currently unavailable, desired tasks?

People want a way to remember to water and care for their plants. Forgetting to water plants was the most cited reason for plant death, and the only task that participants in our inquiries mentioned completing on a regular basis.

Plantr Task Analysis

4.How are tasks learned?

Most people learned how to take care of their plants through trial and error. Some consulted the Internet, nursery staff, or friends for more information on plant care.

Plantr Task Analysis

5.Where are the tasks performed?

Tasks like watering and fertilizing are performed at the plant's location. People keep plants in their workplace.
Getting information about plant
care was performed in a variety of places. People who consult the Internet could be anywhere with a platform that supports web browsing. Those who go to the nursery to talk to plant experts are required to go to a specific location to talk to someone in person.

Plantr Task Analysis

6.What is the relationship between a person and data?

We identified three different types of data: a plant’s current state, information about plants, and data that reflects the person’s plant care history.
A plant's current state is data on the moisture level of its soil and the general appearance of the plant (e.g., color, stiffness/limpness of leaves). People use this information to determine the plant's needs. Caroline and Lucy watered their plants when the soil felt dry or the

leaves began to droop

Plantr Task Analysis

7.What other tools do people have?

Caroline, Lucy, Jack, and Kacy all have phones and computers.
People also have a water source, pots, and soil for their plants.
Most people probably have access to a nursery or library.

Plantr Task Analysis

8.How do people communicate with each other?

Plant owners communicate on online forums and message boards. People who happen to be in the nursery at the same time might talk to each other about plant care. Likewise, people who have friends with indoor plants may share plant care tips.

Plantr Task Analysis

9.How often are the tasks performed?

Watering is performed with a frequency between twice a week (Jack) and twice a month (Caroline). Fertilizing is performed less frequently, between once every two weeks to once every three months. Plants do not become sick often enough to make a good estimate about how often people try to get help.

Plantr Task Analysis

10.What are time constraints on the tasks?

Plants must be watered with some regularity, so if people do not water their plants for long enough, the plants will start to die. Likewise, if plants are in need of attention for other reasons - pH imbalance, environment too dry - and they do not receive attention within some amount of time, they will die. Watering, caring, and learning how to care for a plant takes time. People who are very busy might not have the time or attention required

for plant care.

Plantr Task Analysis

11.What happens when things go wrong?

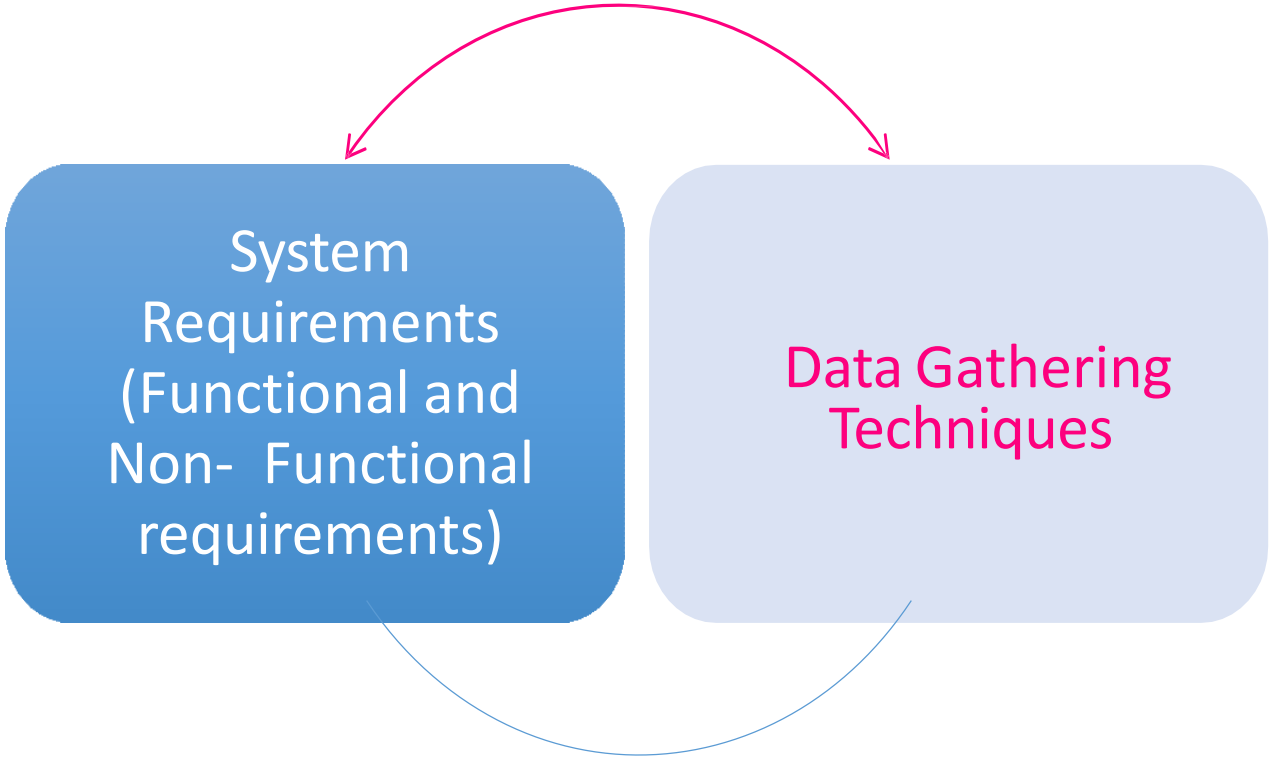
When plants became "sick", people take action, seek help, or ignore the problem until the plant dies. When people forget to water plants, they usually notice that the plant needs water and give it water. Sometimes people may not realize that a plant

needs water until it is too late.

2.Requirements Gathering Techniques

Outline

- **Requirements Types**
- **Data Gathering Techniques**

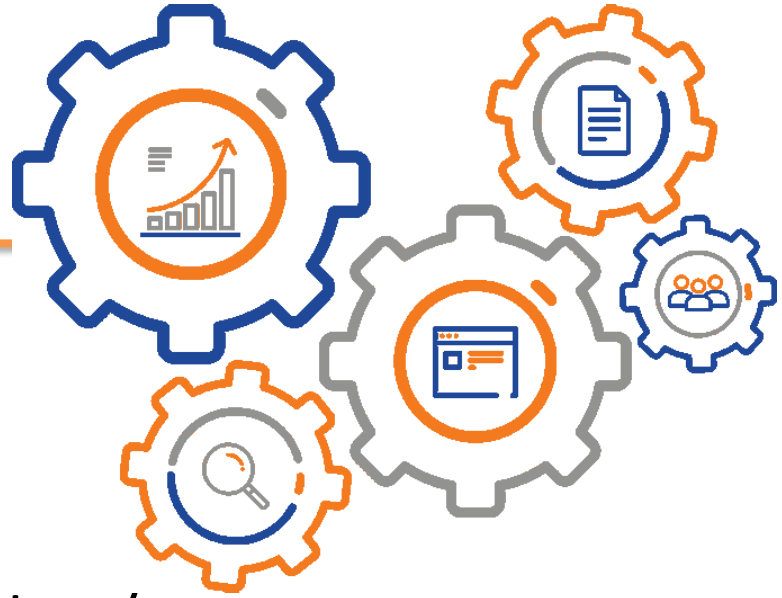


Requirements types

Requirements Types

- Functional Requirements
- Non-Functional Requirements

Requirements types



1. Functional Requirements:

- Fundamental or essential subject matter of the product/system.
- Describe what the product/system has to do or what processing actions it is to take
- Historically the main focus of requirements activities

Requirements types

2. Non functional Requirements:

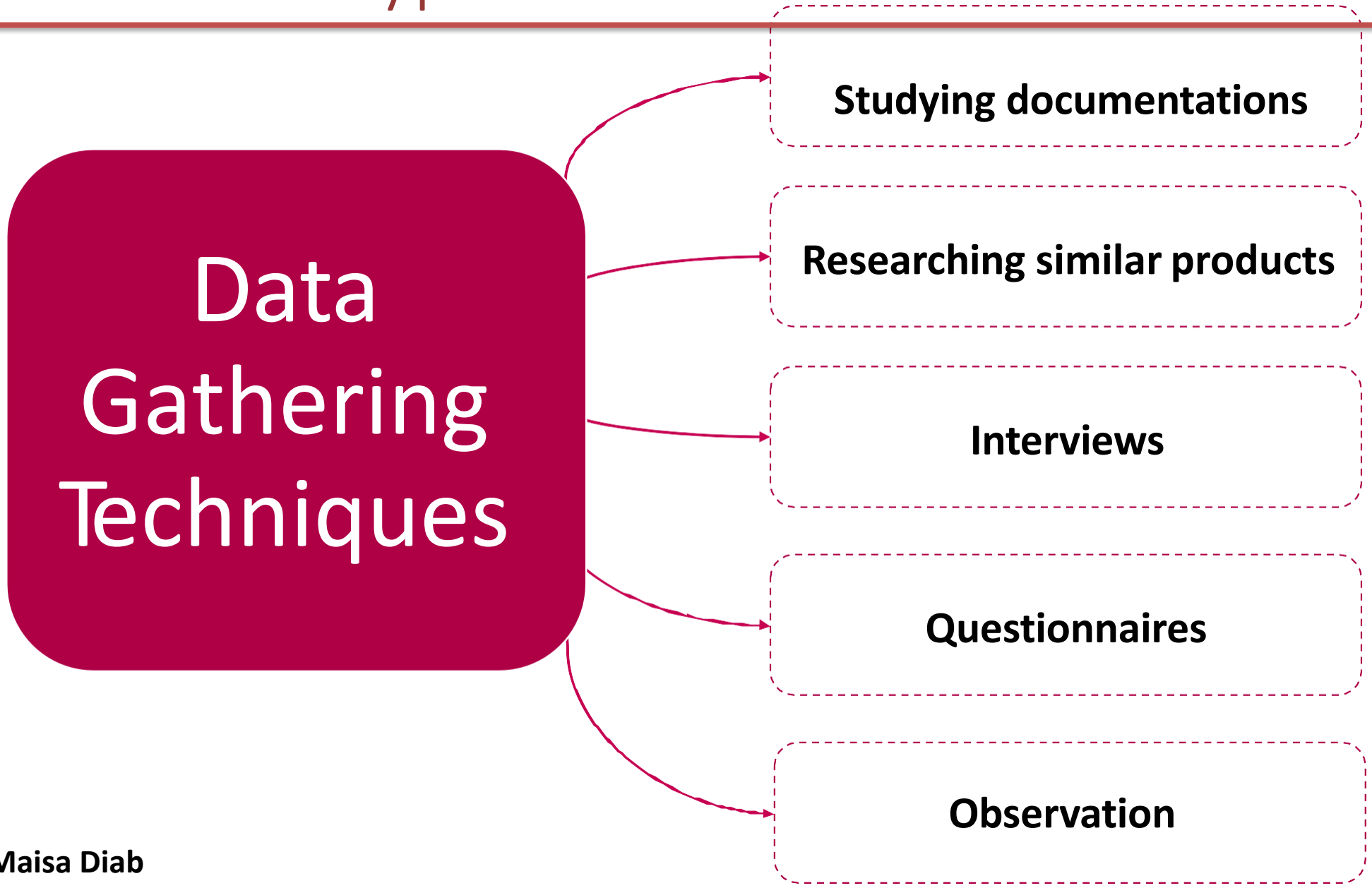
- Properties that the functions must have
- Describes the constraints of the system and its development
- Covers a number of aspects of design: image, usability, performance, maintainability, security, cultural acceptability, etc.
- These requirements are as important as the functional requirements for the product's success.

Examples

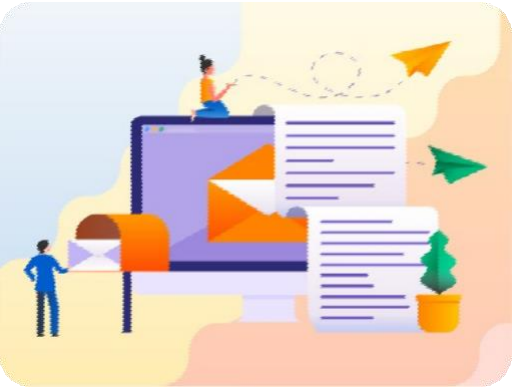
Suggest a functional and non-functional requirements for the following Systems:

- Self-service filling and payment system for a petrol (gas) station.
- Online Shopping System.
- Online E-learning System.

Requirements types



Studying documentation



- Procedures and rules are often written down in **manuals**
- They act as an excellent source of data about the steps involved in an activity and any regulations governing a task.
- Good for understanding legislation, and getting background information
- Not to be used in isolation
- No stakeholder time, which is a limiting factor on the other techniques

Researching similar products/systems

- Researching about other similar products.
- This information can be collected from already published text available in textbooks, government or private companies' reports, newspapers, magazines, online published papers and articles.
- Other sources can be knowing the current products available in market or the ones widely used.

Interviews & Focus Group

❖ **Interviews:**

- Structured, unstructured or semi-structured
- Good for exploring issues

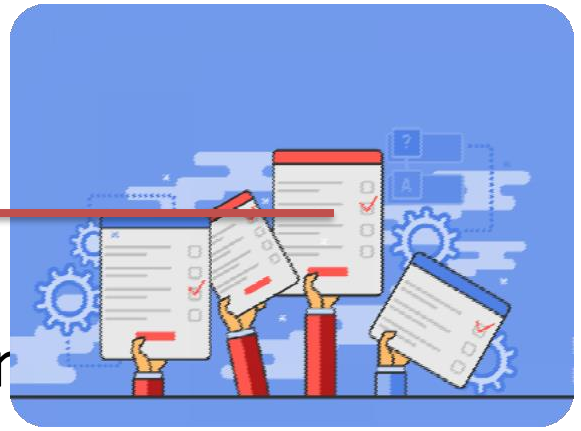
Interviews Drawbacks:

1. Time consuming
2. Infeasible to visit everyone in person to conduct such interviews

❖ **Focus Group:**

- A combination of interviewing, surveying, and observations.
- Good at gaining a consensus view and/or highlighting areas of conflict
- Props e.g. sample scenarios of use, prototypes, can be used in interviews

Questionnaires



- A series of questions designed to elicit specific information
- Questions may require different kinds of answers:
  - *simple YES/NO; choice of pre-supplied answers; comment*
- Often used in conjunction with other techniques
- Can give quantitative or qualitative data
- Good for answering specific questions from a large, dispersed group of people

Observation

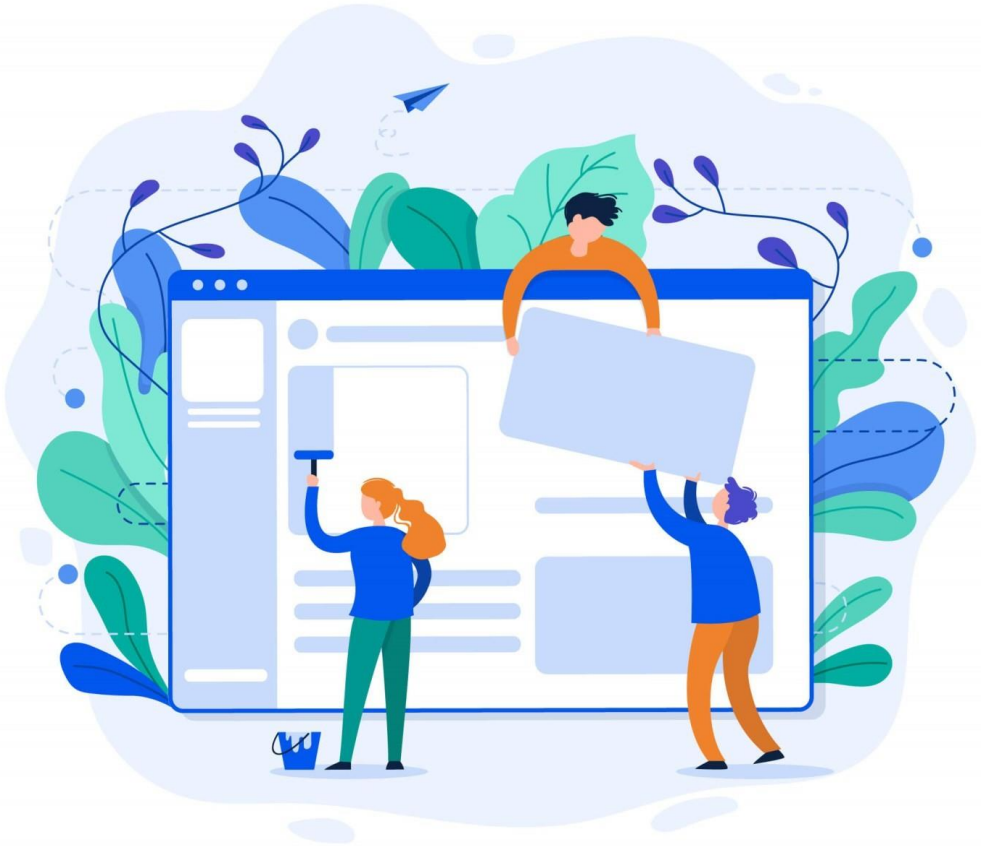
- Naturalistic observation: – Spend time with **stakeholders** in their day-to-day tasks, observing work as it happens
- Gain insights into stakeholders' tasks
- Good for understanding the nature and context of the tasks
- But, it requires time and commitment from a member of the design team, and it can result in a huge amount of data

Lab Assignment !

- Project – (phase1 – part 1) – *deadline at week ؟*

3.Design

Logo Design



Outline

- What is Logo
- What a Logo Is & What it Represents
- Principles of Effective Logo Design
- Successful Logo
- Logo Design Process
- Logo Designing Tools
- Colors
- Typography

What is Logo ?

- Logo is a graphic mark commonly used by commercial enterprises, organizations and even individuals to aid and promote instant public recognition.
- Logos are either purely graphic (symbols/icons) or are composed of the name of the organization.

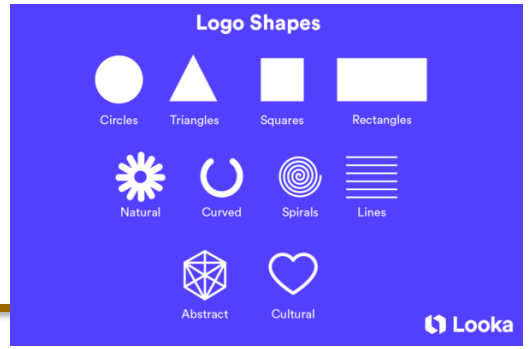
LOGO CAN BE BASED ON: *Symbol* , *letter* , *abstract*

What is Logo ?

1. العلامة النصية
2. علامات الجمع
3. العلامة الورقية
4. حرف واحد فقط
5. نموذج الرسالة
6. الرمز أو العلامات التجارية
7. الملخص
8. التميمة
9. الشعارات
10. رسالة في الشكل
11. الفضاء السلبي
12. 3D
13. الرسوم المتحركة
14. ريترو
15. ديناميكي

https://pollthepeople.app/types-of-logos/

What is Logo ?



The psychology of shapes

Understanding the psychology of shapes gives you the upper hand when designing a logo. By working with the subconscious meaning behind each shape, you'll better communicate your brand and set the right foundation for your logo.

Here's the attributes associated with basic shapes:

- **Circular shapes**: Unity, community, friendship, stability, feminine
- **Triangular shapes**: Masculine, power, law, science
- **Square shapes**: Strength, efficiency, professionalism, practicality
- **Vertical lines**: Aggression, masculinity, strength, progress
- **Horizontal lines**: Calm, tranquility, community, speed

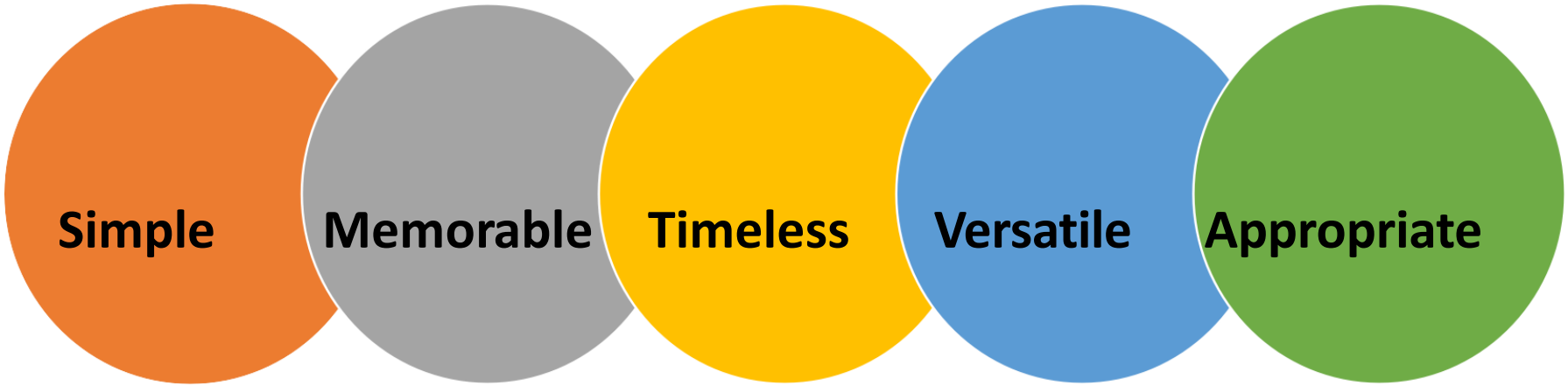
What a Logo Is & What it Represents

- Before you design a logo, you must understand:

what a logo is, *what it represents* and *what it is supposed to do*.

- A logo is not just a mark – a logo reflects a business's commercial brand via the use of shape, fonts, color, and / or images.
- A logo is for inspiring trust, recognition and admiration for a company or product and it is our job as designers to create a logo that will do its job.

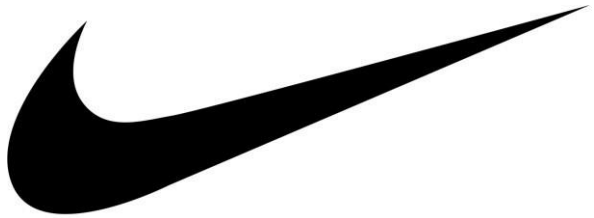
Five Principles for Effective Logo Design

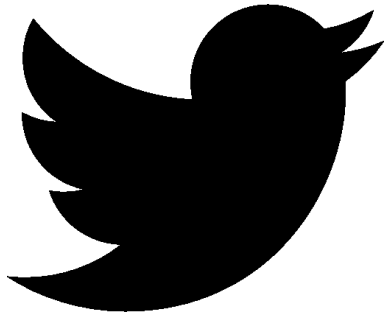


1. A logo must be simple

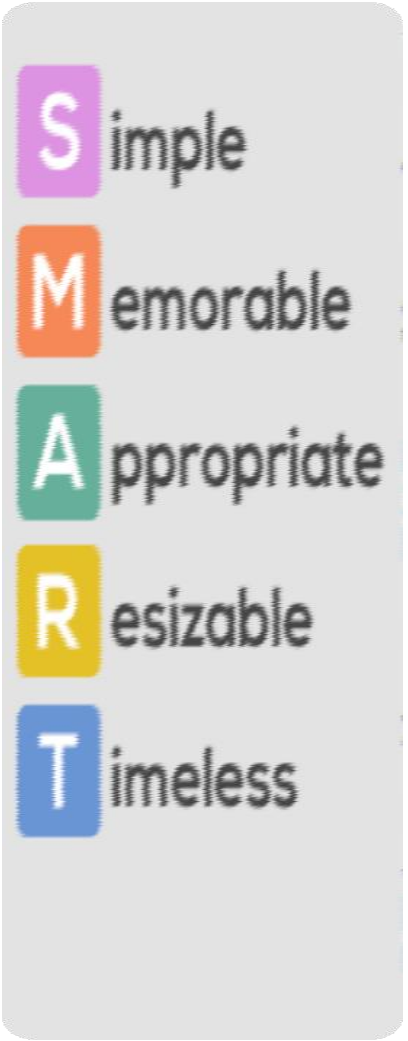
Simple
Memorable
Appropriate
Resizable
Timeless

- A simple logo design allows for easy recognition and allows the logo to be versatile & memorable.





2. A logo must be memorable



- Following closely behind the principle of simplicity, is that of memorability.
- An effective logo design should be memorable and this is achieved by having a simple appropriate logo.

3. A logo must be appropriate

- How you position the logo should be appropriate for its intended purpose.
- For example, if you are designing a logo for children's toys store, it would be appropriate to use a childish font and color scheme.
- This would not be so appropriate for a law firm.

4. A logo must be versatile

Simple
Memorable
Appropriate
Resizable
Timeless

- An effective logo should be able to work across **a variety of mediums and applications.**
- For this reason a logo should be designed in vector format, to ensure that it can be **scaled to any size.**
- The logo must work in just **one color too.**

5. A logo must be timeless

Simple

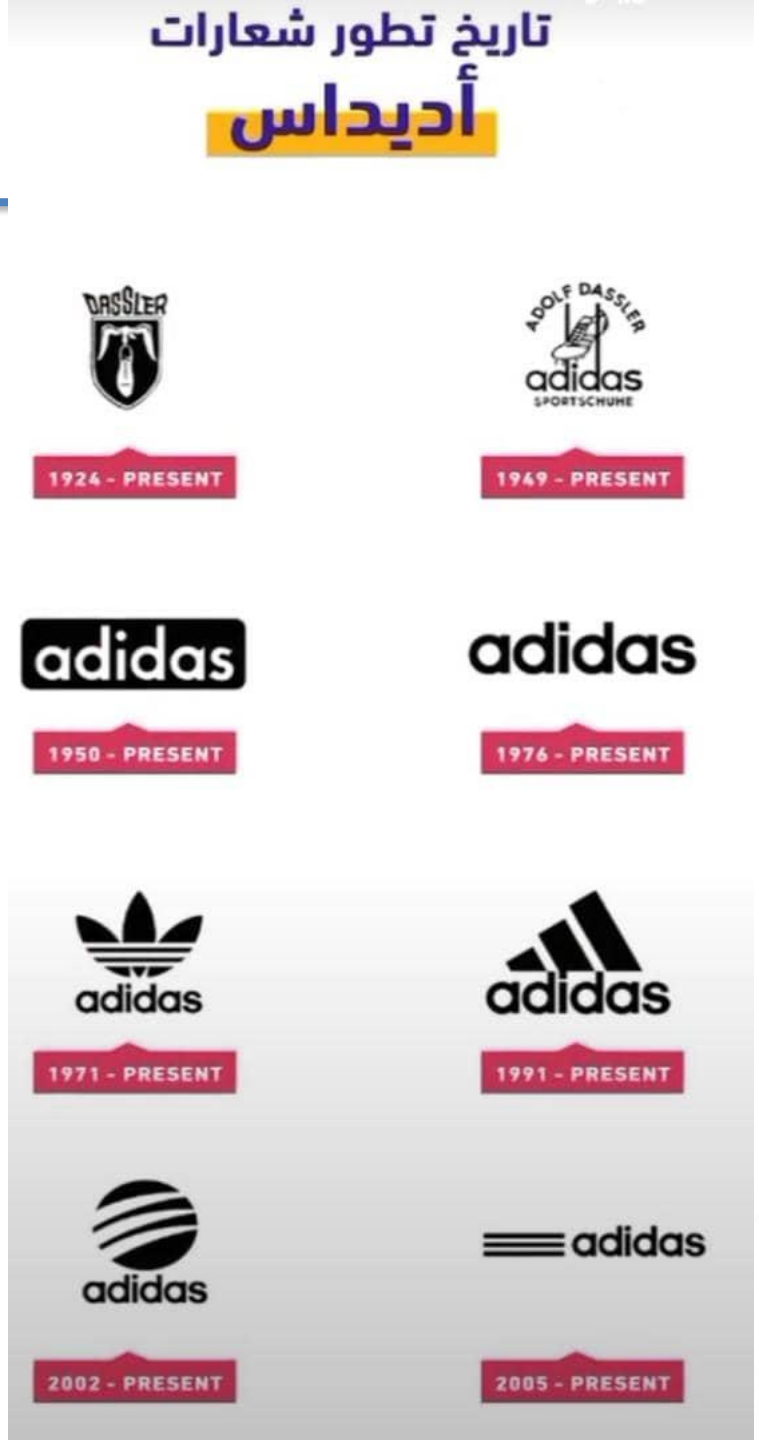
Memorable

Appropriate

Resizable

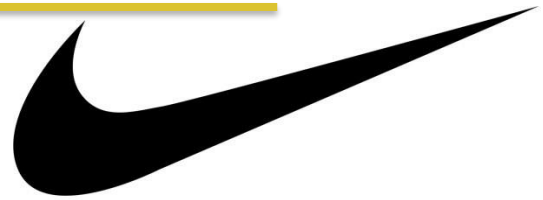
Timeless

- An effective logo should be timeless – that is, it will stand the test of time.
- Will the logo still be effective in 10, 20, 50 years?



Successful Logo

Let's look at the classic Nike Swoosh !



- This logo was created by Caroline Davidson in 1971 for only $35 yet it still a strong, memorable logo, effective without color and easily scalable.
- It is simple, fluid and fast and represents the wing in the famous statue of the Greek Goddess of victory, Nike – something perfect for a sporting apparel business.

- **Nike is just one of many great logos, think about other famous brands that you know about and check out their logos** – ***what makes them successful?***

Logo Design Process

logo design process usually consists of:

1. The Design Brief
2. Research and Brainstorming
3. Sketching
4. Prototyping and Conceptualizing (*designing tools in next slides*)
5. Send To Client For Review
6. Revise and Add Finishing Touches

In brief, we recommend

- After you have got your design process sorted out, it is usually a good time to begin mastering your software (Adobe Illustrator is the industry standard) but remember you can't design a logo by just hopping straight onto the computer… brainstorm and sketch first !

- After you have got your initial ideas and sketches from brainstorming you can then usually jump onto the computer to start digitizing your logo.

- After you have got a great concept(s) digitized you can send it to your client, get revisions, and eventually complete the logo and thus, you have successfully created a professional logo.

Logo Designing Tools

- Adobe Illustrator
- Adobe Photoshop
- Adobe Flash
- Corel Draw* (Recommended Free Trial version) (https://www.coreldraw.com/en/pages/free-download/)
- Sothink Logo Maker*
- **There is some website that helping on design logo :**
- https://secure.logomaker.com/logomaker/

Logo Designing Tools

Logo Designing Tools

colors

color connotations in Logo

What is Logo ?

How to choose the perfect logo shape

1. Choose the values you want your logo shape to represent

List your business's values and use them to guide you in choosing the right logo shapes that highlight those attributes. Your values will also be the pillars of your brand personality, so take the time to survey your customers to get it right from the start.

2. Use a color palette that compliments your values

Colors can trigger different emotions. So, complementing your logo shape with the right color combinations can either boost your logos appeal or steer it in a different direction. Use color deliberately!

3. Consider your competition

Take a look at your competitors' logo shapes and make a note of the most used shapes and colors. Although your logo shape and color palette should be rooted in your brand personality, try to differentiate yourself with shape and color while staying true to your vision and industry.

Play with all sorts of logo shapes in our logo maker and see what looks best for your brand!

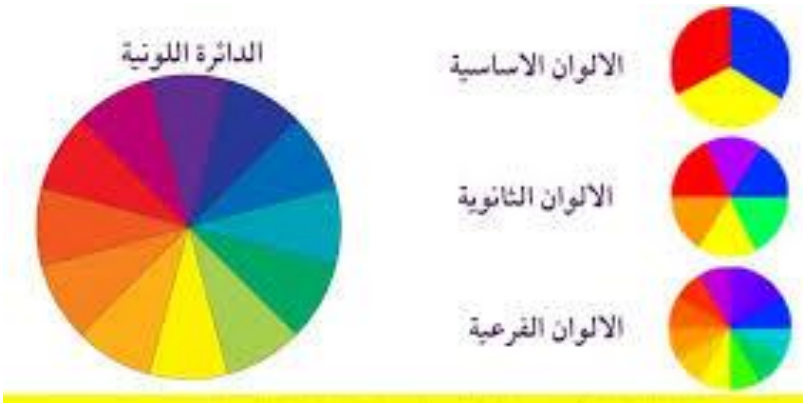
Color system

Primary, secondary and tertiary colours

Primary Colors

Secondary Colors

Tertiary Colors

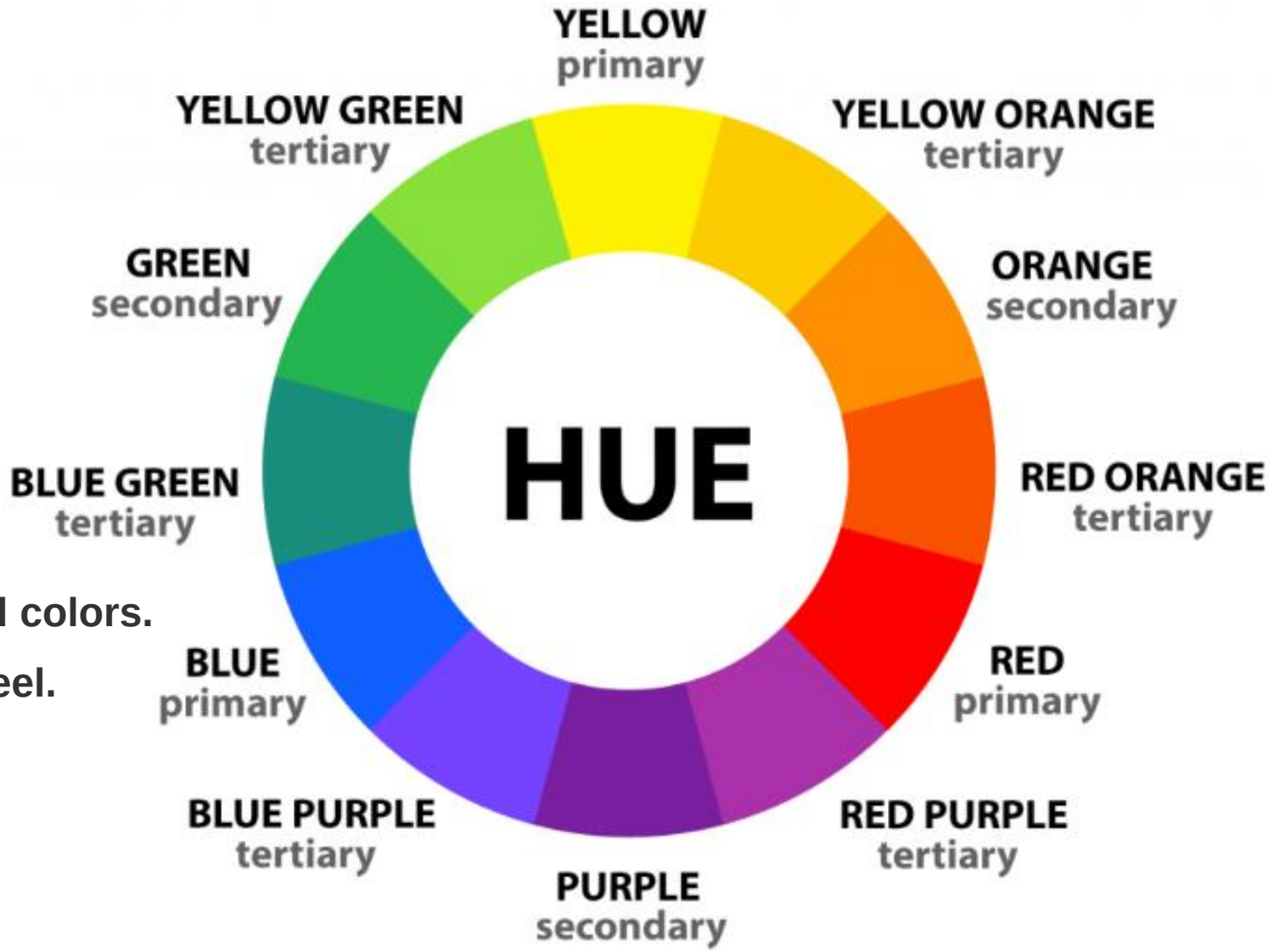


Color wheel

عجلة الألوان تمثل جوهر نظرية الألوان، إذ تحدد الطريقة التي تُختار بها الألوان لتكون متناغمة ومتماسكة. تم اختراعها من قِبل "إسحاق نيوتن" في عام 1666، ومن اسمها تدل على أنها عجلة دائرية مكونة من مجموعة من الألوان، سواء باستخدام نموذج RGBأو CMYKأو RYBوالتي تبدو كالآتي

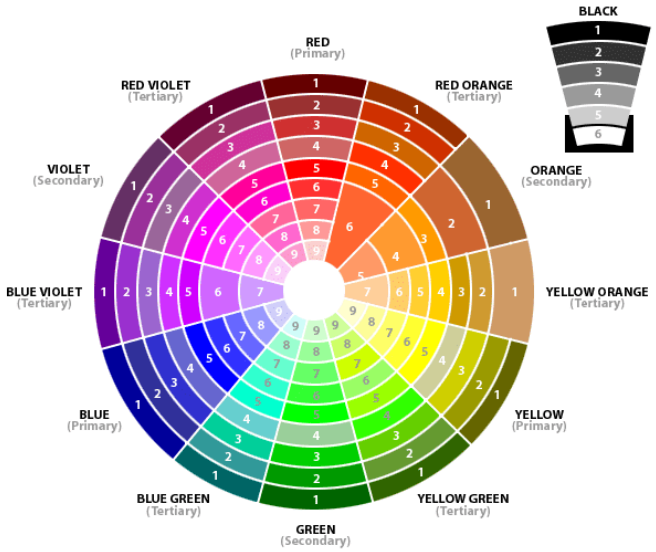
Color wheel

was the first model used to demonstrate the relationship between different colors.



- **Hues are pure, bright, and fully saturated colors.**
- **There are 12 basic hues on the color wheel.**
- **Black, white, and gray are not hues.**

Color wheel



هناك 12 لونا في عجلة الألوان:

- **ألوان رئيسية** : الأحمر، الأصفر ، الأزرق
- **ألوان ثانوية:** ناتجة عن مزج لونين رئيسيين بنسب متساوية:
  البرتقالي (أحمر+ أصفر)
  الأخضر (أزرق+ أصفر)
  البنفسجي (أزرق+ أحمر)
- **الألوان الثلاثية** :

أخضر مزرق، أخضر مصفر ، بنفسجي مزرق، بنفسجي محمر، برتقالي محمر، وبرتقالي مصفر

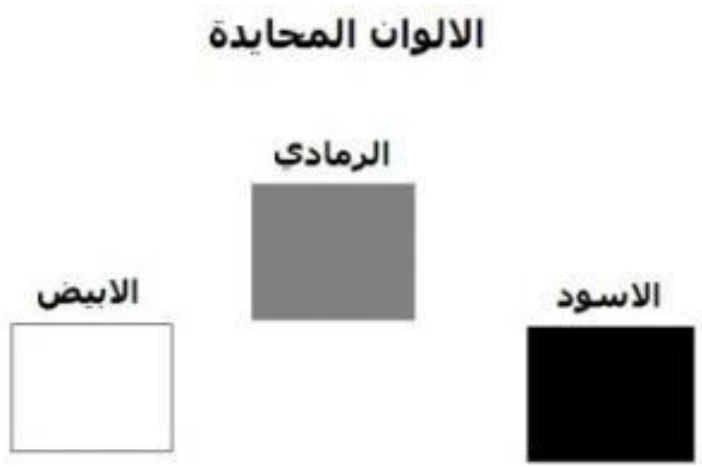
Color wheel

الألوان الحيادية (المحاديدة)

هي الأبيض والأسود ودرجات الرماديات العديدة التي تتنج عن طريق خلط اللونين الأبيض والأسود

وقد سميت بالألوان الحيادية لأنها :

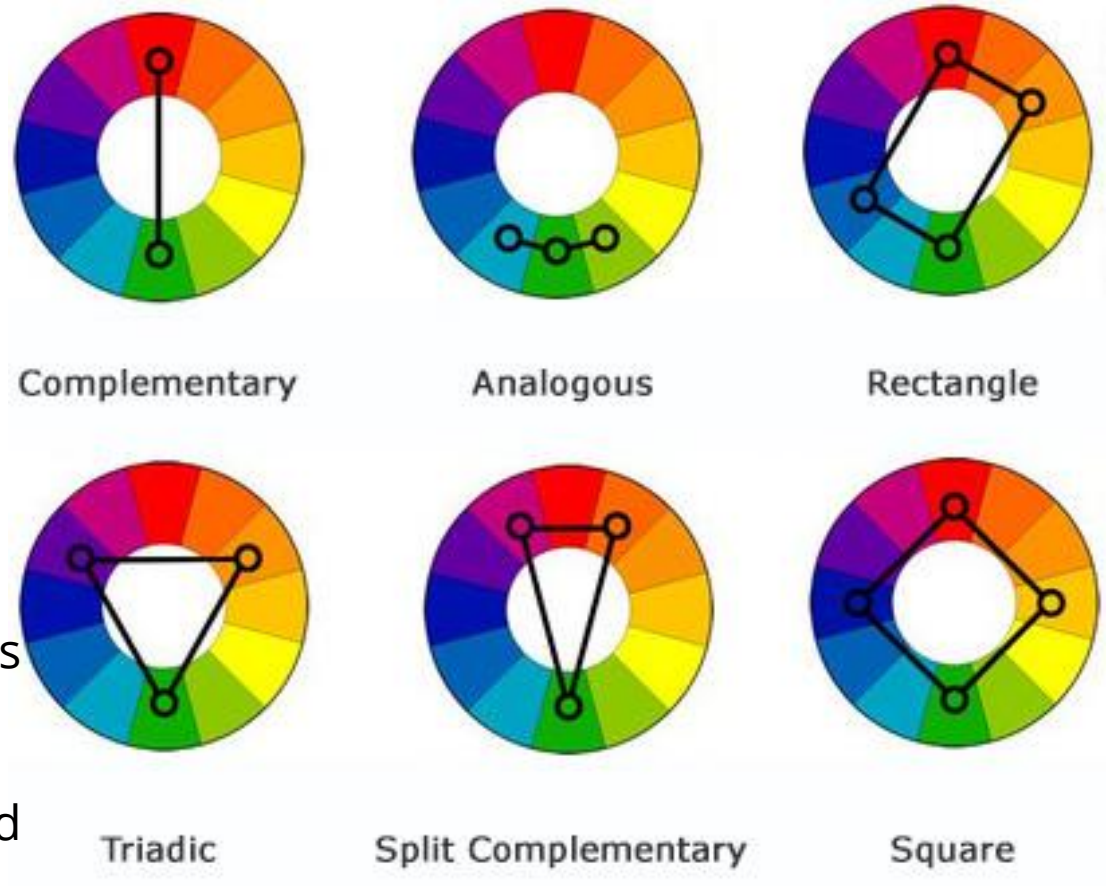
- غير متواجدة في دائرة الألوان.
- تتفق مع أي مجموعة لونية.



Color wheel

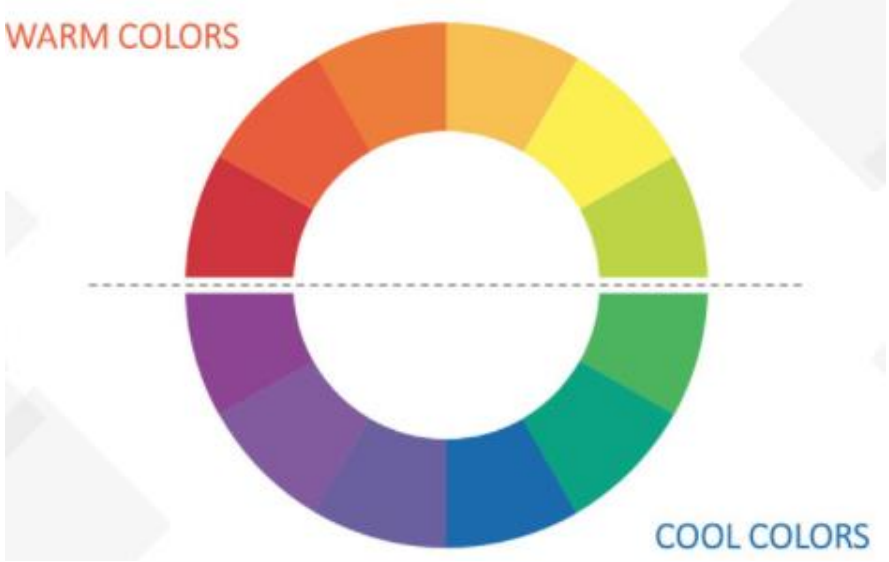
الانظمة اللونية

To create a professional color scheme, pick two colors opposite each other on the color wheel (these are called complementary colors), three colors equally spaced around the color wheel forming a triangle (these are called triadic colors) , or four colors forming a rectangle (these are called tetradic colors). Complementary colors are ideal for high contrast. Triadic colors generates a more balanced contrast, used for example for title and subtitles in the same canvas. Finally, tetradic colors allow to have a theme with two vectors of complementary colors. After the basic color scheme is formed, you can tint , shade or intone those colors to expand your palette.



Color wheel

This color circle is divided into warm and cool colors indicating vividness, energy and calm, soothing respectively.



الألوان الحارة – الساخنة – الدافئة :

تشمل على الألوان الصفراء والبرتقالية والحمراء وقد سميت بهذا المسمى لأنها تذكرنا بألوان النار والشمس والدم وهي مصادر الدفء.

- **الألوان الباردة:**
- تشمل على الألوان الزرقاء والخضراء والبنفسجي .
- وهي تتفق مع لون السماء والبحر الحقول الخضراء.
- وهي مبعث على البرودة.

Describing Color

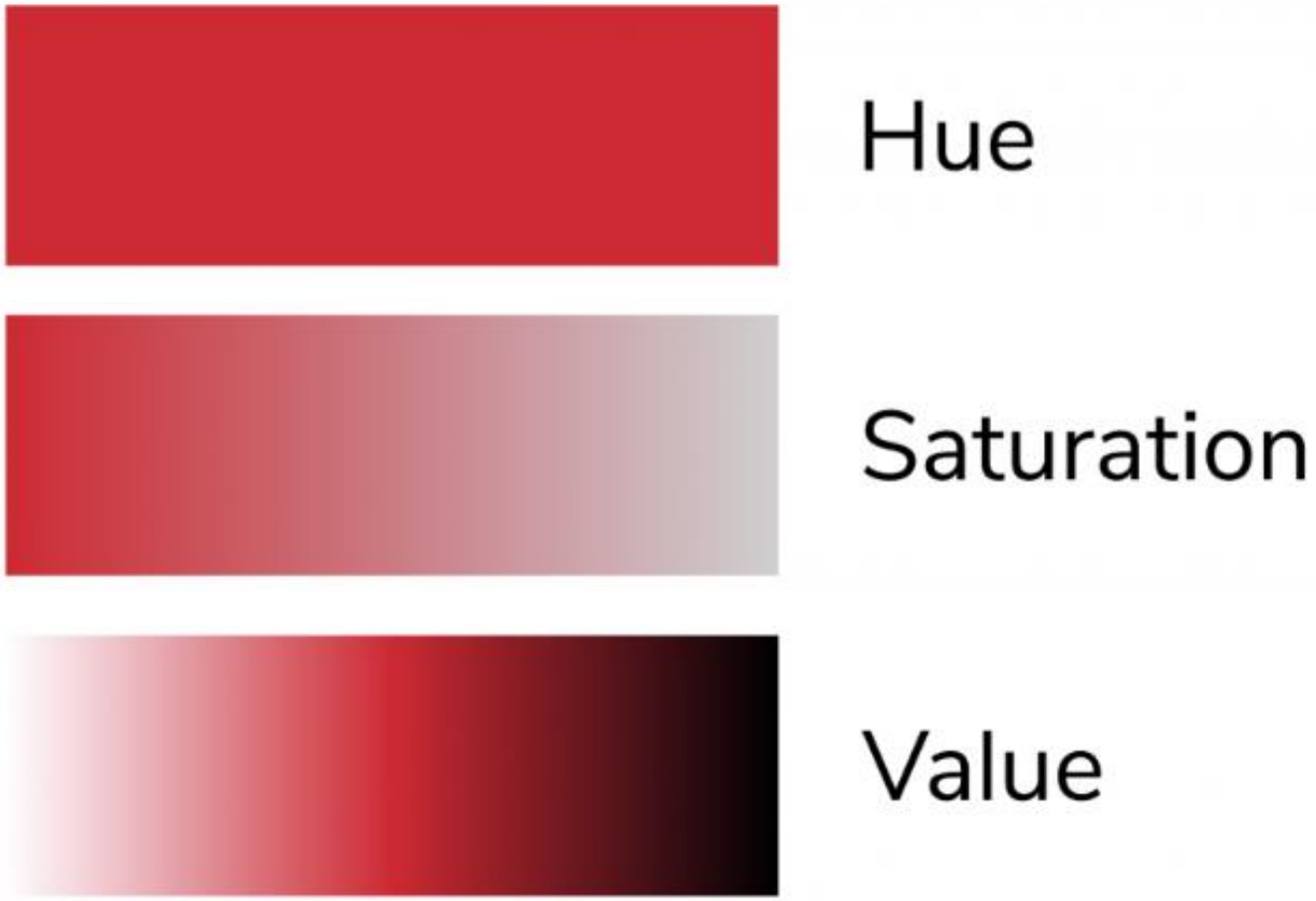
طبيعة اللون (مواصفات اللون) عند العالم منسل

اصل اللون: – صفة اللون – كنه اللون : ويرمز (**H**) **Hue** (احمر، اصفر ...)
ويمكن تغير صفة اللون عند مزجه بلون اخر.

تشبع اللون : ويرمز له (**C**) **Chroma**
مقدار شدة اللون او صبغة ونقاؤها وغناها ومدى اختلاطها بالالوان المحايدة

قيمة اللون : ويرمز له **(V) Value**
تطلق على اسم اللون (ساطع أو قاتم) مثال نضع قطعة حمراء نصفها في منطقة مضاءة ونصفها الآخر في منطقة معتمة ، ماذا يحدث؟؟

Describing Color - HSV



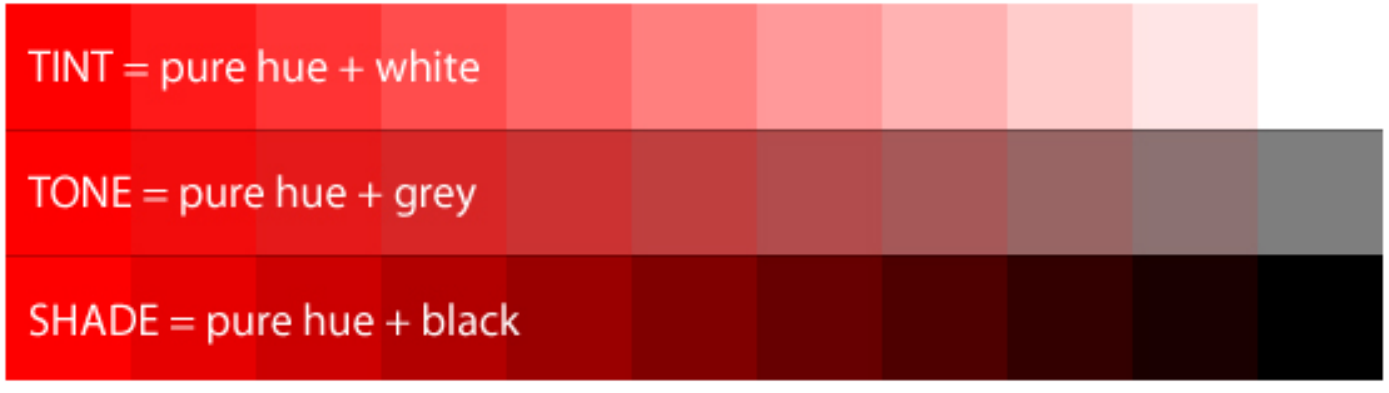
Describing Color

There are three other terms related to color theory those are tint, shade, and tone.

- **In tinting**, a color is made lighter by adding white.
- **In shading**, black is added to get the darker version of the color.
- And intoning, gray is added to get a different tone.

let's look at "saturation," or "chroma"

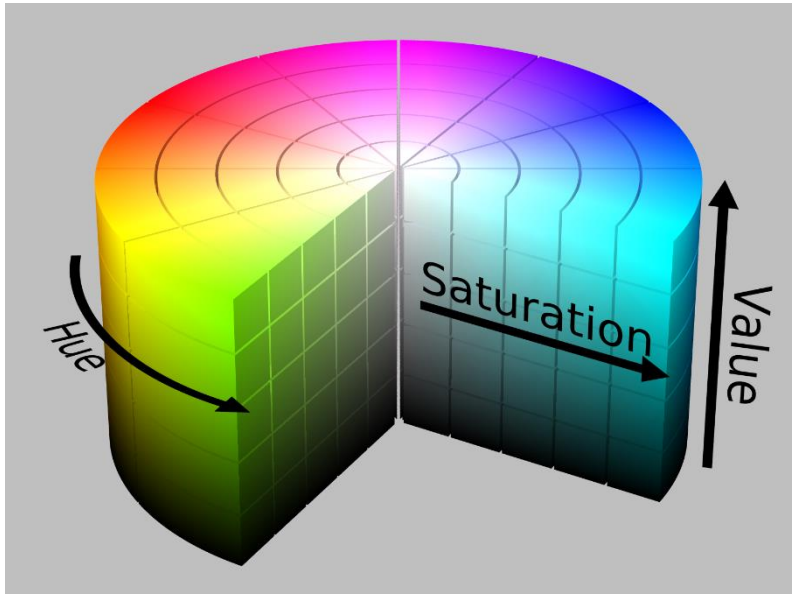
Saturation defines the brilliance and intensity of a color. When a pigment hue is "**toned**," both white and black (grey) are added to the color to reduce the color's saturation.

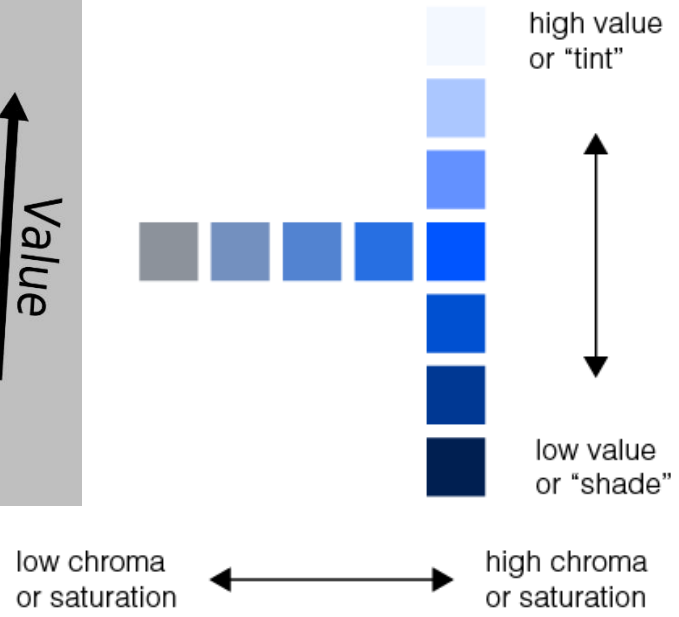


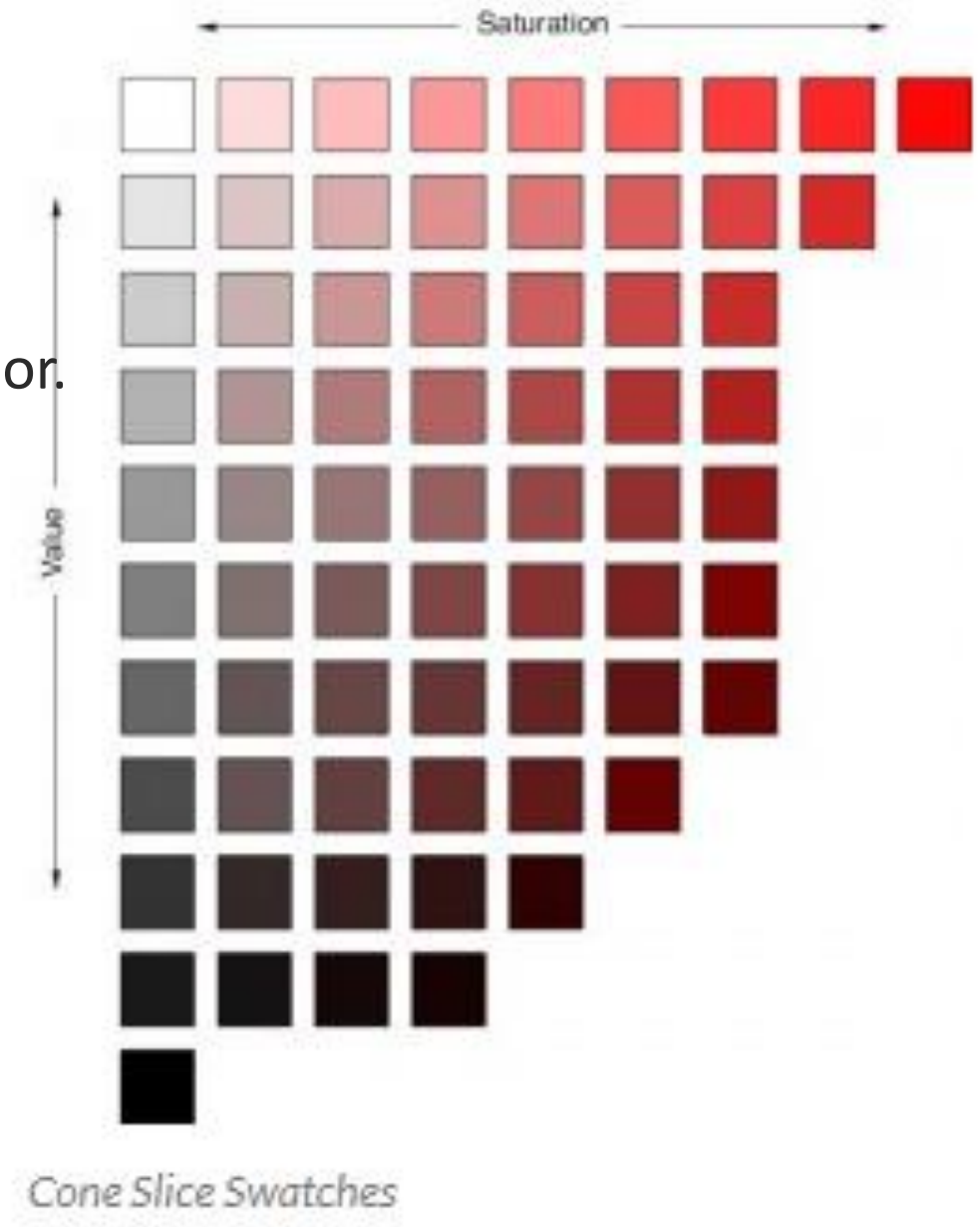
Describing Color

let's look at "value"

It's the level of **brightness**, How **light** or dark is a color.







Dr. Maisa Diab

Describing Color - HSV or HSB or HSL

Hue — اللون

The 'color' of the color. Red, Orange, Yellow, Green, Blue, Indigo, Violet

Saturation (Chroma) — اضاءة اللون

Intensity of the hue in the color. Desaturated colors tend to look gray.

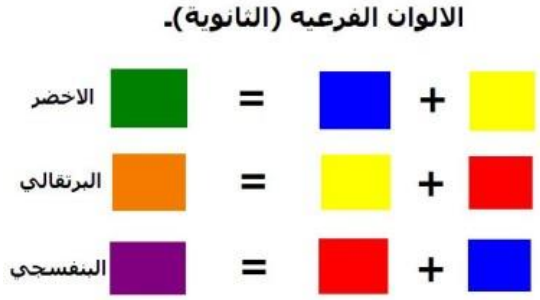
Value Or Light or Bright — تشبع اللون

Lightness (tint) or darkness (shade) of a color.

Describing Color

كيف يمكن تغير اللون ؟

- **الطريقة المباشرة:** تتم بالتغير المادي للألوان وذلك عن طريق مزجه بألوان اخر ، مثلا ،



1. التغير في صفة اللون
2. التغير في حدة (قيمة)اللون
3. التغير في درجة اللون أي مزجه بالألوان المكملة له

- **الطريقة الثانية:** وذلك من خلال خلق احساس بتغير اللون دون الحاجة للتغير المادي منها.
  * اذا تجاورت ألوان مختلفة في تسميتها ودرجتها وكثافتها .
  * اذا تأثرت الالوان بخلفيتها من الألوان المختلفة.
  * اذا تتابعت وتدرجت الالوان في العمل الفني.
  * اذا اختلفت طبيعة الألوان من حيث تركيبها ونسيجها.

Typography

What is Typography?

Typography is the art of arranging letters and text in a way that makes the copy **legible, clear, and visually appealing to the reader**. Typography involves **font style, appearance, and structure**, which aims to elicit certain emotions and convey specific messages

Type Attributes:

Font	Sans Serif	Serif	**Mono**	*Handwritten*
Size	Important text	Less important		
Weight	**Bold**	Regular	Light	
Style	Underline	*Italic*		

Type Attributes:

Character Spacing

A U S T AUST

Line Spacing

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Alignment

Left to right
Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

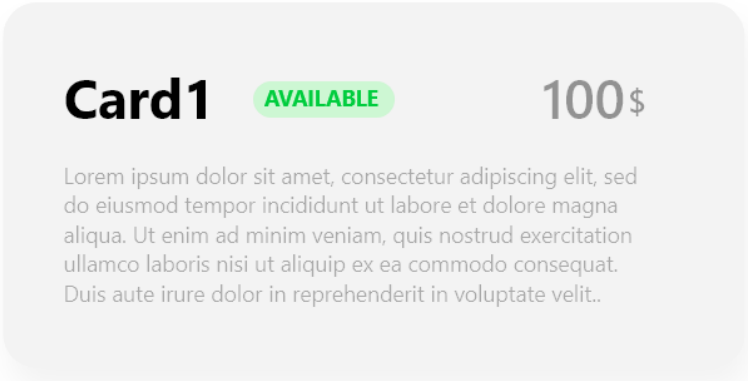
Center Alignment
Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.

Type Attributes:

Colors Warning message Success message

Opacity Enable text Disabled text

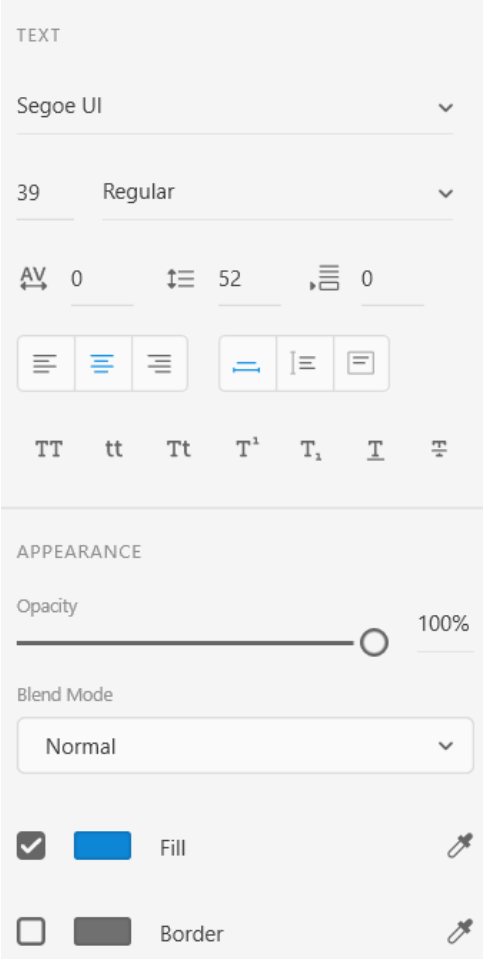
Example:


Card1
AVAILABLE
100$
Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit..

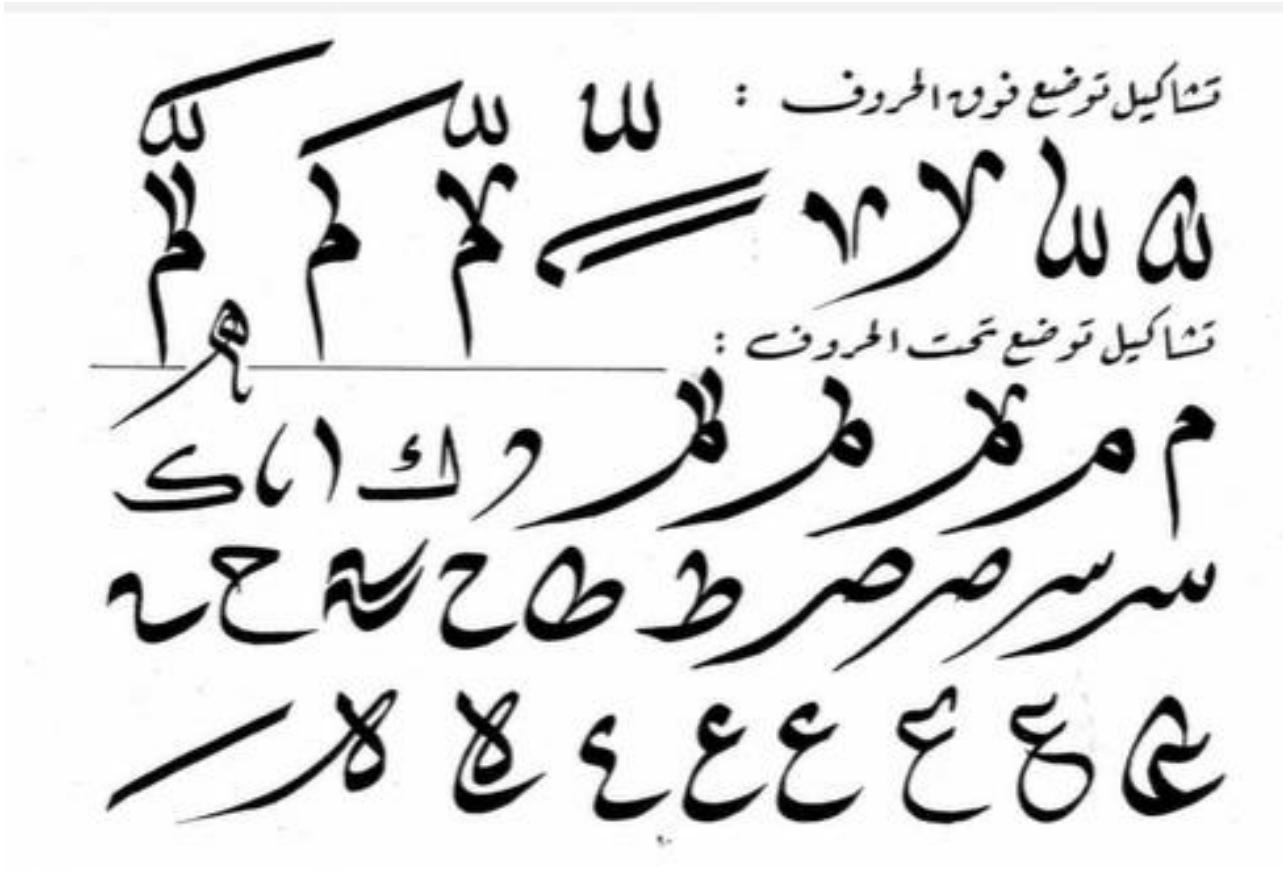
How to change text attributes in XD

Lorem ipsum

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua.



Arabic Typography



Arabic Typography

Create emotional impact with fonts

4.Paper Prototyping